

**Bedding Plant Culture** - Geraniums should not be planted outdoors until all danger of frost is past and the soil has warmed. Geraniums grow best where they receive at least 6 to 8 hours of sunlight daily. Flowering is reduced and diseases may be more problematic in the shade. Good air circulation is beneficial, but protect from strong winds which can break the brittle branches.

Soil in the flower beds should be well drained. Consult Horticulture Information Leaflet No. 555, *Installation and Maintenance of Landscape Bedding Plants*, for more information.

A soil pH of 6.5 (mildly acid) is ideal, with poor growth occurring below pH 5.5. Submit a soil test to the North Carolina Department of Agriculture, and follow recommendations for addition of lime to raise soil pH.

Proper fertilization of geraniums is of utmost importance. Geraniums respond well to fertilization and are stunted and yellowed in soils lacking a ready source of nitrogen. Make sure that organic matter added is well decomposed, or it may rob nitrogen from the geraniums as it decomposes. A garden fertilizer with a N-P-K analysis of 5-10-5 or 6-12-12 applied at a rate of 2-3 pounds per 100 square feet (one heaping teaspoonful per square foot) is recommended before planting. Through the growing season geraniums require fertilization every 4 to 6 weeks. Apply 10-10-10 or 8-8-8 at the rate of 2 pounds per 100 square feet. Choose a fertilizer with a slow release form of nitrogen to guard against leaching of nitrogen during heavy rains, which may damage ground and surface water quality, and to ensure a steady supply of nitrogen to the growing plants. Consult Horticulture Information Leaflet No. 551, *Bed Preparation and Fertilization Recommendations for Bedding Plants in the Landscape*, for more information.

Transplant geraniums after all danger of late frost is past in your area. Geraniums are easy to transplant and establish quickly after soils are warm in the spring. If bedding plants have a heavy, dense root ball, knock the potting mix out and break up the root ball before planting. Break up or remove peat pots, never letting the peat pot extend above the soil

surface, as this wicks water away from the roots. Plant geraniums at the same level as they were growing in pots--not deeper, and not shallower.

Mulching with pine straw, pine bark chips or shredded hardwood bark mulch is recommended to conserve water in the soil and prevent splashing of soil onto plants during heavy rains, which may spread disease organisms. Apply mulch after the soil warms in the spring. A 1-2 inch layer of mulch is adequate to reduce high soil temperatures during the summer, prevent soil crusting, improve aeration and reduce weed growth.

Water geraniums sufficiently to prevent wilting in the landscape, at least once per week if rainfall is not adequate. Soaker hoses and drip irrigation are preferred for water conservation and to keep water off of the foliage, which contributes to disease problems. If using overhead irrigation, water early enough in the day to allow leaves and flowers to dry before nightfall, which will help prevent disease problems.

**Propagation** - Most geraniums root easily from stem cuttings, and many cultivars must be vegetatively propagated to maintain desired flower and/or leaf color, shape and scent. Propagate in the fall, allowing for 3-4 weeks of frost-free weather for rooting to take place. Take cuttings from September (Mountains) to October (Coastal Plain) from healthy mother plants which have been kept rather dry for several weeks. Take cuttings 3 to 4 inches in length from the growing tips of branches. Trim off the leaves from the base of the cutting, stick them into a coarse, sandy medium in small pots or flats, and water well. Provide indirect light and do not allow the cuttings to dry out. After roots are formed, place cuttings in full sun and water only enough to keep the cuttings from shriveling. Keep the surface soil dry to reduce diseases. Fertilize with a water soluble fertilizer every two weeks.

Many bedding geraniums are seed grown. Geranium seeds have a very hard seed coat which can inhibit germination, so home gardeners often scarify seeds (scratch to break the seed coat) to allow water to enter. Sow seeds in winter approximately 3 months before the last frost date. Sow in a flat in commercial seed starting medium, spacing seeds  $\frac{1}{4}$  inch apart in a row,